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PEMBINA PIPE LINE LTD.

ANNUAL REPORT for 1977

PEMBINA PIPE LINE LTD.

Corporate Information

HEAD OFFICE
900 - 320 - 7th Avenue S.W.
Calgary, Alberta
T2P 0X4

FIELD OFFICES
Post Office Box 330
Drayton Valley, Alberta
T0E 0M0

Post Office Box 579
Redcliff, Alberta
T0J 2P0

TRANSFER AGENT AND REGISTRAR
Montreal Trust Company
Calgary, Alberta

BANKERS
The Royal Bank of Canada
Calgary, Alberta

SOLICITORS
Jones, Black & Company
Calgary, Alberta

AUDITORS
Peat, Marwick, Mitchell & Co.
Calgary, Alberta

Directors

P. G. CLARKE
Calgary, Alberta

L. B. GORDON
Calgary, Alberta

C. S. LEE
Calgary, Alberta

D. W. McCLEMENT
Calgary, Alberta

F. P. MANNIX
Calgary, Alberta

A. D. NESBITT
Montreal, Quebec
(Deceased February, 1978)

A. H. ROSS
Calgary, Alberta

S. C. WATERS
Calgary, Alberta

Officers and Key Personnel

F. P. MANNIX
Chairman of the Board

A. H. ROSS
President

D. J. WIGHAM
Vice President
and General Manager

E. L. MORRIS
Senior Vice President

T. PARKS
Senior Vice President

L. B. GORDON
Vice President -
Corporate Planning

L. G. ELHATTON
Vice President

R. A. ROBINSON
Vice President -
Finance

W. G. TYLER
Vice President -
Production

P. S. CHRISTENSEN
Treasurer

A. V. COMEAU
Secretary

FINANCIAL AND OPERATING HIGHLIGHTS

	1977	1976
FINANCIAL		
Gross revenue	**$20,267,000**	17,953,000
Cash flow net of current income taxes	**11,879,000**	9,724,000
Per share	**1.43**	1.17
Income before extraordinary item	**3,682,000**	3,350,000
Per share	**0.44**	0.40
Net income	**2,244,000**	3,350,000
Per share	**0.27**	0.40
Capital expenditures	**$10,727,000**	8,637,000
PIPE LINE OPERATION		
Deliveries — barrels per day	**98,175**	103,817
PRODUCTION		
Crude oil and gas liquids — barrels	**774,000**	779,000
Natural gas sales thousand cubic feet	**9,172,000**	8,085,000
LAND		
Gross — acres	**3,217,000**	3,367,000
Net — acres	**968,000**	1,121,000
WELLS DRILLED		
Gross	**44**	59
Net	**12**	22

DIRECTORS' REPORT TO THE SHAREHOLDERS

Financial

In 1977, Pembina's net earnings from operations rose by 9.9% to $3.7 million or 44¢ per share before providing for an extraordinary charge of $1.4 million (17¢ per share).

Improvement in earnings resulted primarily from better prices for petroleum liquids and natural gas together with higher natural gas deliveries; an increase in exploration expenses partially offset these gains. Pembina's share of the costs of the Gas Arctic Northwest Project Study to construct a northern pipeline was charged to earnings as an extraordinary item following the selection of another route by the National Energy Board.

Important developments in the Company's operations in 1977 included the following:

- Pembina continued to place primary emphasis on seismic and drilling programs designed to evaluate its unexplored acreage in the foothills of Alberta and in British Columbia. During 1977, the Company participated in the drilling of 44 wells of which 25 were successfully completed as oil or gas wells. Through farmout agreements, the Company evaluated some of its lands by contributing acreage rather than cash; 14 of 26 exploratory wells were drilled under this arrangement during the year.
- The acquisition of interests in six blocks of prospective petroleum acreage in the Gulf of Mexico.
- The West Pembina deep exploration play in Central Alberta is of significance to the Company. Firstly, new oil discoveries in the area will extend the useful life of Pembina's existing pipeline system. During the year ten miles of eight inch pipe line were laid to connect the new West Pembina oil discoveries. Secondly, Pembina, with properties in the area, continued seismic evaluation of both its holdings and open Crown lands.
- The upgrading of natural gas pipeline facilities in the Medicine Hat-Etzikom area of Alberta to increase utilization of the gas transportation capability of the system.
- Natural gas deliveries were up 13.4% to 9.2 billion cubic feet while crude oil and natural gas liquids production declined by 0.5% to 774,200 barrels. The Company's pipeline division gathered and transported an average of 98,175 barrels per day of crude oil and natural gas liquids, a 5.4% decrease from 1976. It is expected that additional production in future years from the West Pembina area will help to offset declining levels of throughput from the mature Pembina Cardium oilfield.
- As noted on Pembina's 1976 Report, certain operational and administrative functions of the Company were to be consolidated with those of Western Decalta Petroleum (1977) Limited — this was accomplished on May 1, 1977. While, Western Decalta and its subsidiaries exist as separate entities, the consolidation of the Pembina and Decalta staffs has strengthened each of the Company's operating departments.

Further details of the Company's operations during 1977 are presented in the Review of Operations section of this Report.

Industry

Increasing product prices coupled with significant oil and gas discoveries in 1977, are creating a positive climate for investment in the Canadian oil and gas industry. Optimism is, however, being tempered by the lack of markets for new discoveries of natural gas. The various governments of Canada recognize the need for such markets and appear favorable to some exchange mechanism whereby Canadian gas can be sold to the United States today and replaced by equivalent energy at a later date. Applications are being made to regulatory agencies in Canada and the United States to export approximately 1.04 billion cubic feet per day of natural gas to the United States under such exchange arrangements.

Management

A number of new officers have been appointed to head the various divisions of the Company. E. L. Morris and T. Parks have been promoted to Senior Vice President, D. J. Wigham is Vice President and General Manager, R. A. Robinson is Vice President Finance, W. G. Tyler is Vice President Production, L. G. Elhatton is Vice President, and L. E. Gano is Manager of the Pipe Line Division.

Directors and Employees

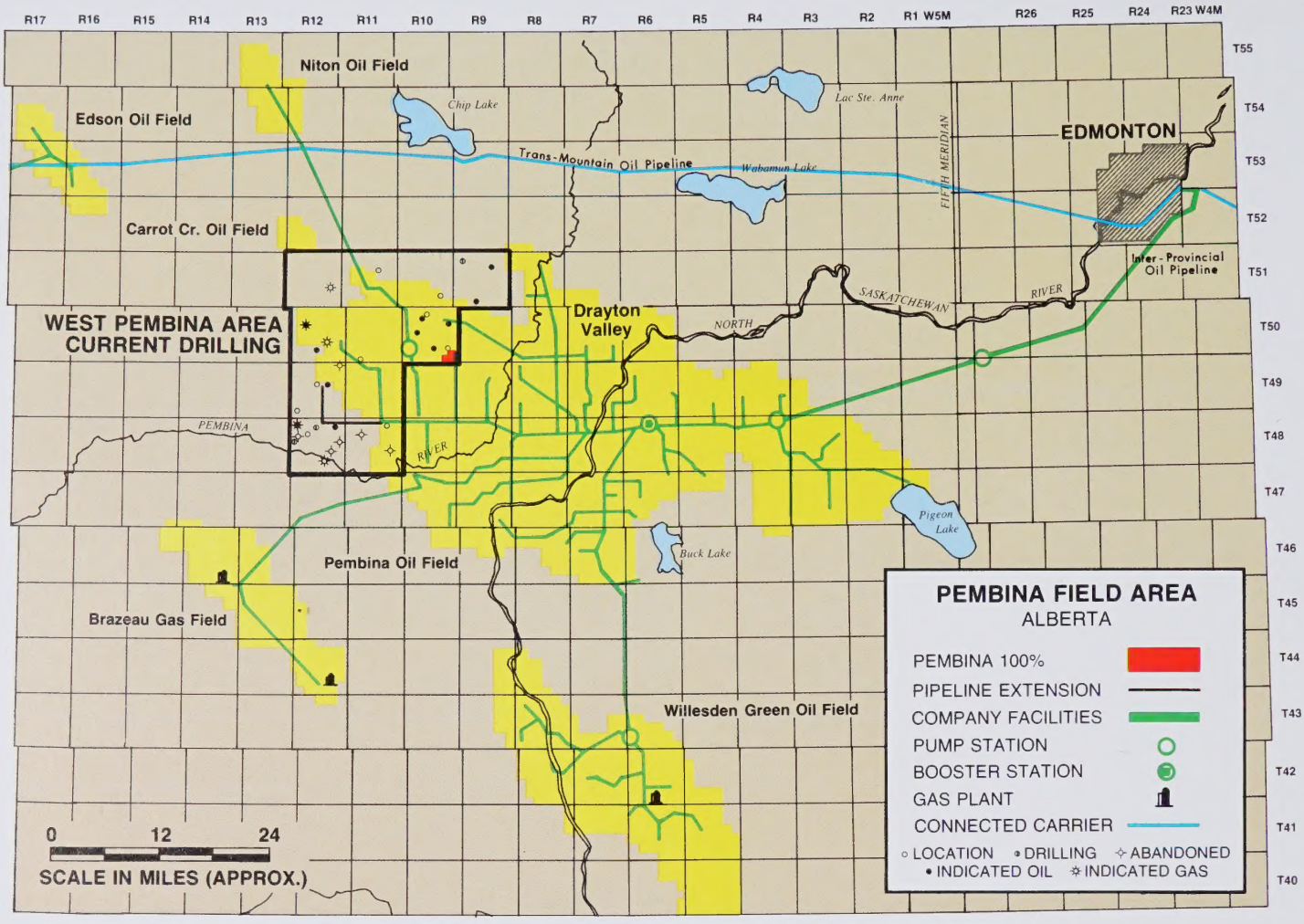
We are deeply saddened by the untimely death of Mr. A. Deane Nesbitt following a skiing accident in February 1978. Mr. Nesbitt served Pembina as an exceptionally able member of the Board since 1963. His wise counsel will be missed.

I am grateful for the loyalty, diligence and effectiveness which our employees have displayed in conducting the Company's affairs. The future success of the Company depends in large measure upon the mutual confidence and whole-hearted cooperation of all employees in carrying out management plans for further improvement and expanding the Company's operations.

On behalf of the Board of Directors.

Calgary, Alberta
April 19, 1978

A. H. Ross, President



REVIEW OF OPERATIONS

PIPELINE

During 1977, the Company's pipeline division gathered and transported 35.8 million barrels of crude oil and condensate for an average daily volume of 98,175 barrels. A comparison of 1977 and 1976 throughputs by fields is shown below. The 5.7% reduction in throughputs in 1977 resulted from production declines in oil fields and natural gas processing plants served by the system. The discovery of new oil reserves and the accelerated pace of exploration activity in the West Pembina area during 1977 is expected to partially offset continuing declines in production from the older oil fields. The pipeline division has recently completed ten miles of eight inch line to handle production from such new discoveries. While much of the main trunk system is already in place close to the various areas of discovery, shorter gathering lines will be built as more wells are placed on production.

At year end the Pembina system consisted of 1,071 miles of line. During the early part of 1978 the system will transport its one billionth barrel, since its inception in 1954.

In addition to the oil pipe line system serving west-central Alberta, the Company also owns a 50% equity interest in South Alberta Pipe Line Ltd. This system gathers and transports natural gas in the Medicine Hat area of Alberta.

PIPE LINE THROUGHPUTS

(thousands of barrels)	1977	Change from 1976 Amount	%
Pembina	**30,141**	(1984)	(6.2)
Willesden Green	**3,756**	(139)	(3.5)
Bigoray	**246**	10	4.0
Cynthia Pembina	**601**	66	11.0
Edson	**117**	(9)	(7.7)
Niton	**221**	(12)	(5.4)
Brazeau (Condensate)	**510**	(45)	(8.8)
Nordegg (Condensate)	**127**	(44)	(34.6)
Peco	**115**	(5)	(4.3)
Total	**35,834**	(2,162)	(5.7)

PETROLEUM PRODUCTION AND EXPLORATION

Crude Oil and Natural Gas Liquids

Pembina's 1977 production of petroleum liquids before deducting royalties are summarized below:

PRODUCTION

(thousands of barrels before royalties)	1977	Change from 1976 Amount	%
Crude Oil —			
Alberta	**474**	(58)	(10.8)
British Columbia	**82**	6	7.6
Saskatchewan	**155**	37	31.3
	711	(15)	(2.0)
Natural Gas Liquids	**63**	10	19.6
Total	**774**	(5)	(0.5)

Overall production volumes of crude oil and natural gas liquids changed little during 1977, however, there were changes in the sources of such production. The decrease in crude oil production in Alberta resulted primarily from the Canadian government's policy of gradually phasing out exports of light crude oil to the United States — such cut-backs reduce production levels from the higher reserve fields under Alberta's prorationing system. Higher demand for the medium to heavy crudes from Saskatchewan partially offset the lower Alberta production. The increased production of natural gas liquids recovered at gas plant facilities reflects the higher volumes of natural gas processed during the year.

The average price received by the company for crude oil during 1977 was $9.96 per barrel compared to $8.29 last year. The price of Canadian crude oil increased $1.00 per barrel on July 1, 1977 and on January 1, 1978 raising the current price to $11.75 per barrel.

Natural Gas

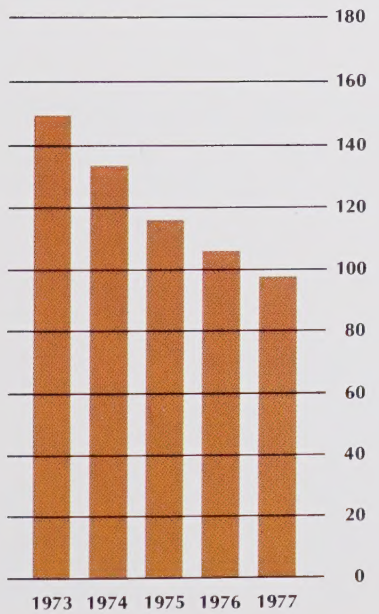
In 1977 natural gas deliveries, before deducting royalty volumes, increased by 13.4% to 9,172 million cubic feet.

PRODUCTION

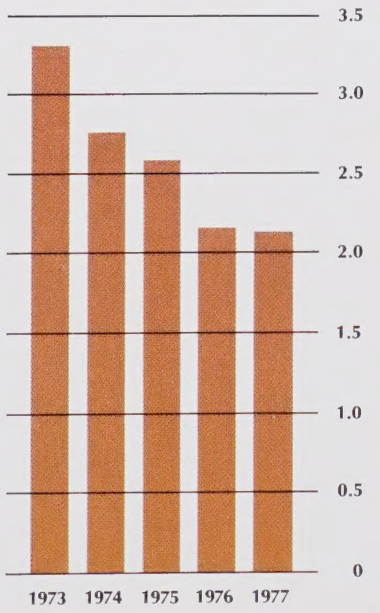
(millions of cubic feet before royalties)	1977	Change from 1976 Amount	%
Natural gas —			
Alberta	**6838**	273	4.1
British Columbia	**2334**	814	53.5
Total	**9172**	1087	13.4

The higher gas deliveries reflect a full year's production from a development drilling program completed late in 1976 in Alberta and the development of new sources of gas production both in Alberta and British Columbia. Factors offsetting these gains to some degree include declining deliverability in a number of older fields and a lower demand from purchasers in Alberta where a temporary surplus of natural gas productive capacity exists.

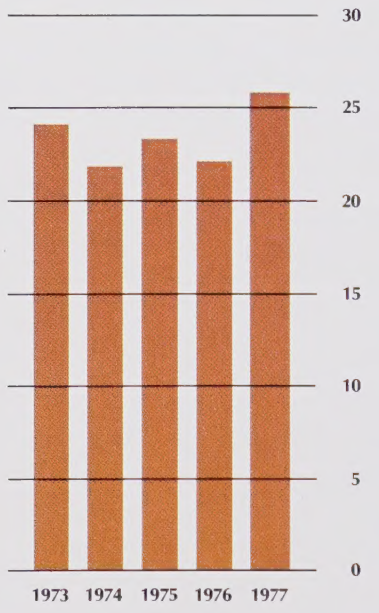
AVERAGE PIPE LINE DELIVERIES
Thousands of Barrels/Day



OIL PRODUCTION
Thousands of Barrels/Day



GAS PRODUCTION
Millions of Cubic Feet/Day



Pembina's total natural gas production sold for an average of $0.81 per thousand cubic feet in 1977 compared with $0.69 per thousand cubic feet in 1976. During 1977, 59% of the total Alberta production was derived from properties in the Medicine Hat area; the average price received for this production including the export rebate, was approximately one-third of the current market level for natural gas in the balance of the province where Pembina's price averaged $1.38 per thousand cubic feet.

A procedure for correcting this situation was eliminated when the Alberta government passed specific legislation which withdrew the powers of the Alberta Public Utility Board to revise natural gas prices in long term contracts where the gas was consumed in Alberta.

Despite this setback the Company is continuing its efforts to renegotiate its gas prices with the City of Medicine Hat and Western Co-operative Fertilizers Limited where contracts terminate in 1985 and 1987 respectively. Representations to the Alberta government by the producers of approximately 4% of the total provincial production who were detrimentally affected by the special legislation have, to date, been unsuccessful.

DRILLING ACTIVITY

Pembina participated in the drilling of 44 wells during 1977, the equivalent of 11.6 net wells; 33 of the wells were drilled in Alberta, the remainder in British Columbia. Included in the above wells are 14 (1.7 net) wells that were drilled under farmout agreements and at no cash outlay to the Company.

A comparison of Pembina's drilling activity in 1977 and 1976 is tabulated below. The higher gas development completions in 1976 reflect efforts to increase deliverability capacity in several fields in Alberta. Significant areas of exploratory drilling activity are discussed in the Exploration section of this Report.

	Development		Exploratory	
Drilling Activity	1977	1976	1977	1976
Gross Wells	**18.0**	33.0	**26.0**	26.0
Oil	**—**	1.0	**1.0**	1.0
Gas	**13.0**	29.0	**11.0**	19.0
Dry	**5.0**	3.0	**14.0**	6.0
Net Wells	**3.5**	17.0	**8.1**	5.5
Oil	**—**	0.3	**0.5**	0.2
Gas	**1.7**	15.2	**4.3**	3.8
Dry	**1.8**	1.5	**3.3**	1.5

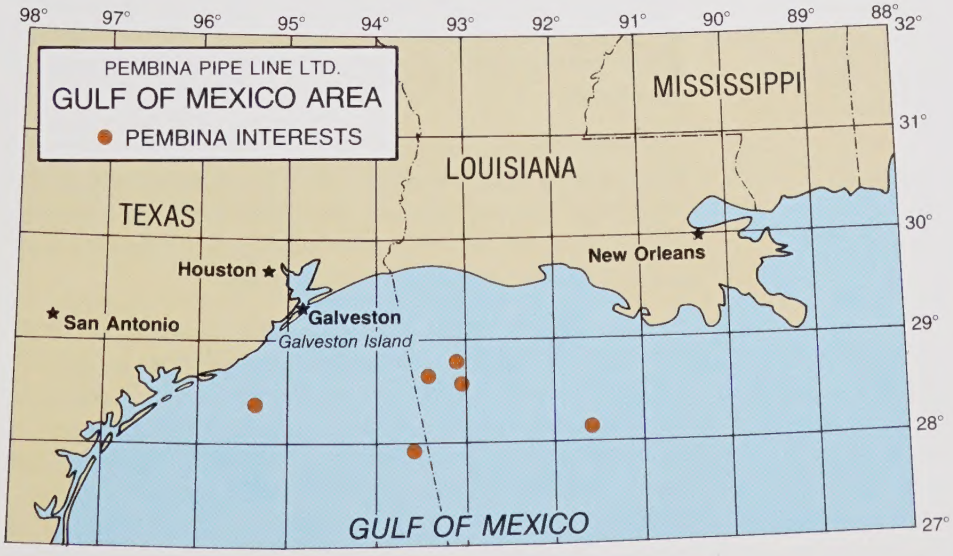
LAND

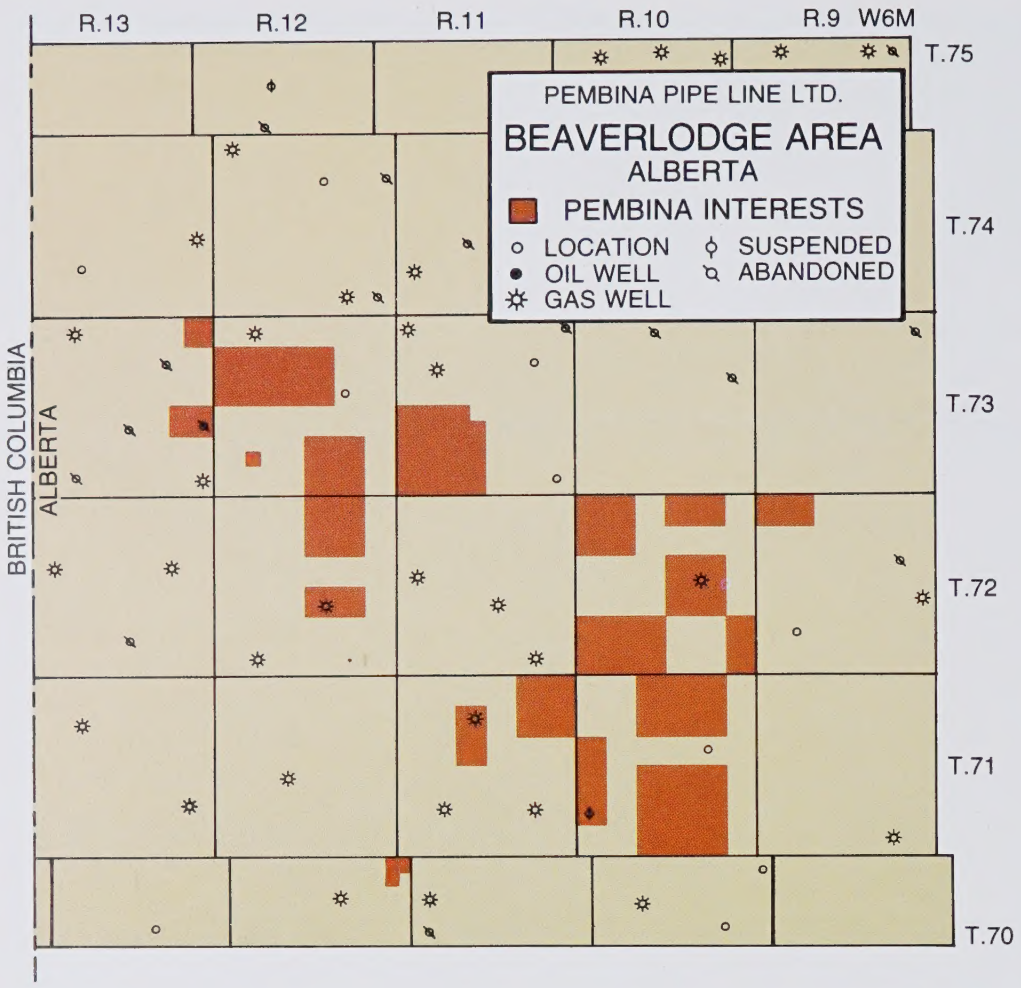
Pembina's undeveloped acreage holdings recorded a modest reduction during 1977. In Canada, acreage surrendered, farmed-out or transferred after geological evaluation was only partially offset by acquisitions. In the United States, initial acreage was acquired offshore in the Gulf of Mexico.

UNDEVELOPED ACREAGE

	Gross Acres		Net Acres	
(thousands of acres)	Year-end 1977	Change vs. 1976	Year-end 1977	Change vs. 1976
Alberta	**1,138**	(81)	**339**	(19)
British Columbia	**865**	(42)	**314**	(38)
Saskatchewan	**39**	(32)	**18**	(9)
NWT and Yukon	**897**	—	**273**	(87)
Arctic Islands	**247**	(26)	**22**	(2)
U.S.A.	**31**	31	**2**	2
Total	**3,217**	(150)	**968**	(153)

LUFKIN


PEMBINA PIPE LINE LTD.
GULF OF MEXICO AREA
PEMBINA INTERESTS
MISSISSIPPI
LOUISIANA
TEXAS
Houston
San Antonio
Galveston
Galveston Island
New Orleans
GULF OF MEXICO
98°
97°
96°
95°
94°
93°
92°
91°
90°
89°
88°
32°
31°
30°
29°
28°
27°



EXPLORATION

Exploratory drilling in 1977 resulted in several discoveries in the Alberta foothills and in British Columbia which provided moderate additions to proved natural gas reserves and indicated that further delineation and development drilling is warranted. Seismic evaluation of the Company's land blocks in Alberta and British Columbia continued during 1977; the Company also participated in seismic programs over available Crown lands in an attempt to define anomalous features in the promising West Pembina Nisku trend area.

In foreign operations, Pembina acquired interests ranging from 4.8% to 8.0% in six offshore blocks in the Gulf of Mexico.

Alberta

A favorable investment climate and a number of promising discoveries of crude oil and natural gas has accelerated the pace of exploration in Alberta. In the West Pembina area of west-central Alberta major accumulations of oil and gas have been reported. Your Company is actively participating in seismic surveys in the area to define prospective areas of acquisition. At year-end the Company owned a 100% interest in 480 acres in this area over which seismic evaluations were being conducted.

In the Elmworth-Beaverlodge area, which lies to the west of Grande Prairie, exploration has been active. The Company owns approximately 20% in 47,500 acres which is gradually being surrounded by indicated gas wells. Three wells have been drilled by the Company to date resulting in two indicated gas successes and one dry hole. A further delineation and development drilling program is planned for these properties.

At Antler Creek, along the Alberta foothills front, an indicated gas discovery is being production tested to determine the potential of the well. Pembina owns a $16^{2}/_{3}$% interest in the 10,400 acre drilling reservation and a 22% interest in 640 lease acres.

Follow-up drilling at Shunda Creek and at Coleman resulted in two successful gas completions. In the Bolton Creek area near Grande Cache, a direct offset to Company lands was completed as a gas well. A farmout has been negotiated on a portion of our 13,000 acres in the area whereby another Company will drill a 14,000 foot well to earn a 50% interest in 2,560 acres. Pembina's interest in the farmout lands will be reduced from 50% to 25% after the well is drilled.

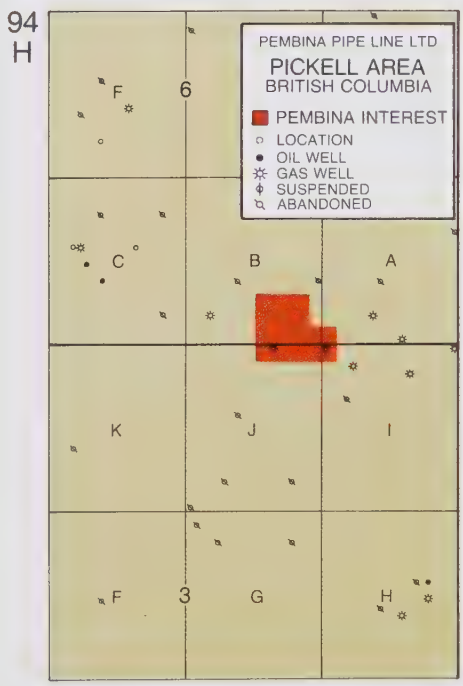
British Columbia

Following the British Columbia government's decision to increase the net price of natural gas so that the net to the producer is comparable to that being paid in Alberta, exploration and development activities took a dramatic upswing. Subject to the extension of gas trunk lines, gathering systems and the construction of processing facilities, a ready market currently exists for natural gas. Pembina's land holdings in northern British Columbia therefore are considered to have both short and long term natural gas potential.

Seismic evaluations are continuing at Cameron River where Pembina owns a 50% interest in 70,000 permit acres and at Muskwa where the Company's interest is 25% in 90,000 permit acres.

Industry is actively exploring the general Jonvan-Thetlaandoa area in north east British Columbia. At Jonvan, Pembina has a 100% interest in 26,000 permit acres; at Tsea, a 50% interest in 29,000 permit acres and at Thetlaandoa, interests ranging from 33⅓% to 50% in 23,000 lease acres.

During 1977, successful gas well completions were made at Birch, Pickell and the Goose sector of Cache Creek.



Consolidated Six Year Review

	1977	1976	1975	1974	1973	1972
Financial (thousands of dollars except per share amounts)						
Gross revenue	**$20,267**	17,953	16,267	15,238	14,856	13,601
Cash flow net of current income taxes	**11,879**	9,724	7,298	6,140	9,486	8,984
per share	**1.43**	1.17	.88	.70	1.11	1.04
Income before extraordinary item	**3,682**	3,350	3,344	1,831	1,159	2,233
per share	**.44**	.40	.40	.19	.11	.23
Net income	**2,244**	3,350	3,344	1,831	1,159	2,233
per share	**.27**	.40	.40	.19	.11	.23
Capital expenditures	**10,727**	8,637	7,493	4,672	11,127	7,521
Investment in property, plant and equipment at year end — at cost	**94,211**	87,438	80,719	75,601	79,213	76,941
Long term debt less current maturities at year end	**$ 2,792**	3,792	4,792	5,792	6,792	7,792
Operations						
Pipe Line:						
Average deliveries — barrels per day	**98,175**	103,817	115,961	133,597	148,255	157,241
Miles of line built in year	**10**	—	8	4	4	—
Miles of line at year end	**1,071**	1,061	1,061	1,053	1,049	1,045
Oil and gas:						
Gross production — Crude oil and natural gas liquids thousands of barrels	**774**	779	949	1,016	1,198	1,183
Natural gas sales — millions of cubic feet	**9,172**	8,085	8,482	8,008	8,812	8,890
Acreage at year end: Gross — thousands of acres	**3,217**	3,367	4,234	4,802	4,824	4,462
Net — thousands of acres	**968**	1,121	1,302	1,309	1,363	1,359
Wells drilled — gross	**44**	59	26	38	53	81
Wells net at year end: Oil	**72**	71	70	69	67	65
Gas	**103**	97	78	77	73	72

Consolidated Statement of Income

Year Ended December 31, 1977
(with comparative figures for 1976)

	1977	1976
Revenue from operations	**$20,127,000**	$17,901,000
Interest and other income	**140,000**	52,000
	20,267,000	17,953,000
Deduct:		
Operating expenses	**6,213,000**	6,268,000
Interest on long term debt	**400,000**	569,000
Other interest expense	**150,000**	156,000
	6,763,000	6,993,000
Cash flow from operations before income taxes	**13,504,000**	10,960,000
Exploration and non-productive drilling	**3,334,000**	1,653,000
Surrendered leases	**447,000**	159,000
Amortization of goodwill	**24,000**	25,000
Depreciation and depletion	**3,192,000**	3,021,000
	6,997,000	4,858,000
Income before income taxes	**6,507,000**	6,102,000
Income taxes:		
Current	**1,625,000**	1,236,000
Deferred	**1,200,000**	1,516,000
	2,825,000	2,752,000
Income before extraordinary item	**3,682,000**	3,350,000
Extraordinary item:		
Write off of investment in Gas Arctic-Northwest Project Study Group (net of $800,000 deferred income taxes)	**1,438,000**	—
Net income for the year	**$ 2,244,000**	$ 3,350,000
Earnings per share:		
Income before extraordinary item	**44¢**	40¢
Net income	**27¢**	40¢

See accompanying notes.

Consolidated Balance Sheet

As at December 31, 1977
(with comparative figures for 1976)

Assets	1977	1976
CURRENT ASSETS:		
Cash	**$ 555,000**	$ 10,000
Short term deposits, at cost	**—**	735,000
Accounts receivable	**3,662,000**	2,510,000
Income taxes recoverable	**378,000**	172,000
Deposits and prepaid expenses	**172,000**	278,000
	4,767,000	3,705,000
INVESTMENTS, AT COST:		
Bonds and shares of other companies	**215,000**	254,000
PROPERTY, PLANT AND EQUIPMENT, AT COST:		
Investment in carrier property, land, leases, wells and other equipment	**94,211,000**	87,438,000
Less accumulated depreciation, depletion and amortization	**38,482,000**	35,463,000
	55,729,000	51,975,000
Operating oil supply	**577,000**	577,000
	56,306,000	52,552,000
OTHER:		
Gas Arctic-Northwest Project Study Group, at cost	**—**	2,238,000
Goodwill and other intangibles, less amounts written off	**265,000**	289,000
	265,000	2,527,000
	$61,553,000	$59,038,000

On Behalf of the Board:

, Director

, Director

Liabilities	**1977**	**1976**
CURRENT LIABILITIES:		
Accounts payable and accrued liabilities	**$ 3,459,000**	$ 2,588,000
Production loan payments due within one year	**1,000,000**	1,000,000
	4,459,000	3,588,000
LONG TERM DEBT:		
Production loans less current portion (Note 3)	**2,792,000**	3,792,000
DEFERRED INCOME TAXES	**3,813,000**	3,413,000
Shareholders' Equity		
SHARE CAPITAL:		
Common shares		
Authorized: 16,000,000 shares having a nominal or par value of $4.15 each		
Issued: 8,325,160 shares	**34,550,000**	34,550,000
RETAINED EARNINGS	**15,939,000**	13,695,000
	50,489,000	48,245,000
	$61,553,000	$59,038,000

See accompanying notes.

Consolidated Statement of Changes in Financial Position

Year Ended December 31, 1977
(with comparative figures for 1976)

	1977	1976
SOURCE OF FUNDS:		
Cash flow from operations net of current income taxes	**$11,879,000**	$ 9,724,000
Other	**39,000**	19,000
	11,918,000	9,743,000
APPLICATION OF FUNDS:		
Capital expenditures plus exploration and non-productive drilling	**10,727,000**	8,637,000
Production loan payments	**1,000,000**	1,000,000
	11,727,000	9,637,000
Increase in working capital	**191,000**	106,000
Working capital at beginning of year	**117,000**	11,000
Working capital at end of year	**$ 308,000**	$ 117,000

See accompanying notes.

Consolidated Statement of Retained Earnings

Year Ended December 31, 1977
(with comparative figures for 1976)

	1977	1976
Retained earnings at beginning of year	**$13,695,000**	$10,345,000
Net income for the year	**2,244,000**	3,350,000
Retained earnings at end of year	**$15,939,000**	$13,695,000

See accompanying notes.

Auditors' Report to the Shareholders

We have examined the consolidated balance sheet of Pembina Pipe Line Ltd. as at December 31, 1977 and the consolidated statements of income, retained earnings and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these consolidated financial statements present fairly the financial position of the company as at December 31, 1977 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Peat, Marwick, Mitchell & Co.

Chartered Accountants

Calgary, Canada
March 9, 1978

Notes to Consolidated Financial Statements

December 31, 1977

1. ACCOUNTING POLICIES

(a) Principles of consolidation:

Included in the consolidated statements are the accounts of all subsidiary companies, each of which is wholly owned.

(b) Property, plant and equipment:

In accounting for the oil and gas operations the Company follows a form of the successful efforts method whereby all exploration and non-productive drilling costs and carrying charges relative to unproven acreage are written off currently and lease acquisition costs, production equipment and drilling costs applicable to productive wells are capitalized. Lease acquisition costs are charged against income upon surrender and capitalized leasehold and drilling costs associated with producing properties are depleted by the unit of production method based on estimated proven reserves. Depreciation of production equipment is computed on a straight line basis at a rate of 7% per annum.

Depreciation of the pipeline system is calculated on the unit of production method based upon estimated proven reserves of the fields served at a rate which approximates 4% straight line.

2. COMPARATIVE FIGURES

Certain of the 1976 amounts have been reclassified to conform with the 1977 presentation.

3. PRODUCTION LOANS

Production loans consist of bank loans in the amount of $3,792,000 which mature in 1981 and which bear interest at prevailing current rates being in the range of 8¾% to 9¾% during 1977. The required payments are $1,000,000 in each of the next three years and the balance due in the fourth year. These loans are secured by certain of the Company's interests in petroleum and natural gas properties and an assignment of the interest in the related gas purchase contracts.

4. ANTI-INFLATION

The Company is subject to the Anti-Inflation Act which provides for restraint on compensation to employees and the payment of dividends.

5. REMUNERATION OF DIRECTORS AND OFFICERS

The remuneration paid to Directors and Senior Officers of the Companies during 1977 and 1976 was $369,000 and $295,000 respectively.

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